WHAT IS CLAIMED:

1.   A method for determining the position of a mobile station within a telecommunications system, the method comprising the steps of:

performing a plurality of measurements associated with a plurality of

5   mobile stations;

estimating the position of the plurality of mobile stations based on said plurality of measurements;

creating calibration parameters based on the estimated positions and said plurality of measurements; and

10   refining the estimated positions of the plurality of mobile stations based on the plurality of measurements associated with the mobile stations and said estimated calibration parameters.

2.   The method of claim 1 wherein said plurality of measurements are time of arrival measurements and said calibration parameters are real time

15   difference (RTD) values.

3.   The method of claim 2 wherein said time of arrival measurements are performed by the mobile station.

4.   The method of claim 2 wherein said time of arrival measurements are performed by the telecommunications network.

20   5.   The method of claim 1 wherein said plurality of measurements are time of arrival measurements and said calibration parameters are base station locations.

6.   The method of claim 1 wherein said plurality of measurements are angle of arrival measurements made by the network and said calibration parameters are angle of arrival biases.

7.   The method of claim 1, wherein said plurality of measurements are

5   signal strength measurements and said calibration parameters are parameters in a model relating signal strength to location.

8.   The method of claim 7, wherein said signal strength measurements are performed by the mobile station.

9.   The method of claim 7, wherein said signal strength measurements

10   are preformed by the telecommunications network.

10.   The method of claim 1, wherein said step of creating calibration parameters further comprises:

deriving a first order approximation of the mobile station positions as a function of bias error; and

15   estimating the bias error using the first order approximation equation.

11.   The method of claim 10, wherein said step of refining the estimated position, further comprises:

refining the estimated mobile station position using the bias estimation.

20   12.   A method of estimating bias errors in parameters used for mobile station positioning, the method comprising the steps of:

estimating the position of a mobile station assuming no biases;

deriving a first order approximation of the mobile station position as a function of the bias;

estimating the biases using the first order approximation equation; and

refining the estimated mobile station position using the bias estimation.

5   13.   A system for determining the position of a mobile station within a telecommunications system, the system comprising:

at least one mobile station;

at least one base station; and

at least one node, wherein said at least one node is configured to:

10   perform a plurality of measurements associated with the at least one mobile station;

estimate the position of the at least one mobile station based on said plurality of measurements;

create calibration parameters based on said estimated position and

15   said plurality of measurements; and

refine the estimated position of the at least one mobile station based on the plurality of measurements associated with the mobile station and said estimated calibration parameters.

14.   The system of claim 13, wherein said plurality of measurements are

20   time of arrival measurements and said calibration parameters are real time difference (RTD) values.

15.   The system of claim 13, wherein said plurality of measurements are signal strength measurements and said calibration parameters are parameters in a model relating signal strength to location.

16.   The system of claim 13, wherein said step of creating calibration parameters further comprises:

deriving a first order approximation of the mobile station position as a function of bias error; and

estimating the bias error using the first order approximation equation.

17.   The method of claim 16, wherein said step of refining the estimated position, further comprises:

refining the estimated mobile station position using the bias estimation.